

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A method of driving a lamp that uses a DC to AC inverter that is connected to a primary winding of a transformer comprising:

(a) monitoring the phase relationship between a voltage across a primary of said transformer and a current through said primary of said transformer; and

(b) keeping said phase relationship between said voltage across said primary of said transformer and said current through said primary of said transformer at substantially a predetermined relationship.

2. The method of Claim 1, wherein said voltage across said primary of said transformer is substantially in phase with said current through said primary of said transformer.

3. The method of Claim 1, wherein during ignition of said lamp, the operating frequency of said inverter is increased by maintaining said predetermined relationship between said voltage across said primary and said current through said primary.

4. The method of Claim 2, wherein said voltage across said primary of said transformer is maintained substantially in phase by using the zero-crossing information of said current in said primary.

5. An apparatus for driving a fluorescent lamp comprising.

a transformer having a primary and a secondary;  
an inverter circuit that converts a DC current into an AC current and operating at an inverter frequency, the inverter circuit driving the primary of said transformer;  
a phase comparator circuit that can monitor the phase relationship between a voltage across said primary of said transformer and a current through said primary of said transformer; and  
a frequency control circuit for adjusting the inverter frequency such that said keeping said phase relationship between said voltage across said primary of said transformer and said current through said primary of said transformer is maintained at substantially a predetermined relationship.

6. The apparatus of Claim 5, further including a voltage controlled oscillator that is responsive to said frequency control circuit and to output an oscillation used by said inverter to generate said inverter frequency.

7. The apparatus of Claim 5 wherein said phase comparator and said frequency control circuit operate to maintain said phase relationship as being substantially in phase.

8. The apparatus of Claim 5 wherein said phase comparator further includes a zero-crossing detector for monitoring said current through said primary.

9. A method of driving a cold cathod fluorescent lamp (CCFL) that uses a DC to AC inverter that is connected to a primary winding of a transformer comprising:

(a) monitoring the phase relationship between a voltage across a primary of said transformer and a current through said primary of said transformer; and

(b) keeping said phase relationship between said voltage across said primary of said transformer and said current through said primary of said transformer such that said phase relationship is substantially in phase.

10. The method of Claim 9, wherein during ignition of said lamp, the operating frequency of said inverter is increased by maintaining said predetermined relationship between said voltage across said primary and said current through said primary.

11. The method of Claim 9 wherein said inverter is a full-bridge inverter.

12. The method of Claim 9 wherein said inverter is a half-bridge inverter.

13. The method of Claim 9 wherein said inverter is a push-pull inverter.